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# A new species of the circumtropical goby genus *Gnatholepis* Bleeker (Teleostei: Gobiidae: Gobionellinae) from northern Australia

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## ABSTRACT

A new species of *Gnatholepis* is described from northern Australia, where it is common on shallow intertidal rocky reefs. It is sexually dichromatic, with males having bright blue markings along the side of the body. The new species' closest relative is *G. gymnocara* Randall and Greenfield, 2001, which is restricted to the east coast of Queensland. Both these species are small, lack scales on the side of the head and lack enlarged canine teeth in the lower jaw. The new species has shown to be basal to all other *Gnatholepis* species.

KEYWORDS: new species, *Gnatholepis,* Gobiidae, Gobionellinae, Indo-Pacific, northern Australia.

## INTRODUCTION

The circumtropical marine gobiid genus *Gnatholepis* is unusual in that it is the only fully marine genus of the subfamily Gobionellinae, species of which are mostly estuarine to freshwater dwelling (Larson 2001; Thacker 2004). There has been little work done on the species of *Gnatholepis*, and attempts at distinguishing species have been few and not always in agreement (e.g. Hoese 1986; Kuiter and Tonozuka 2001; Nakabo 2002).

Characters of the genus *Gnatholepis* were recently reviewed by Randall and Greenfield (2001) in their description of a new species from northern Australia (*G. gymnocara*) and four new subspecies of *G. cauerensis*. They also created neotypes for *Gobius anjerensis* Bleeker, 1851 (the type species of the genus), and for *Gnatholepis davaoensis* Seale, 1910, and synonymised several species, without explanation, with *Gnatholepis anjerensis*. Randall and Greenfield's work was the first attempt by anyone to review the genus. Randall and Greenfield (2001) illustrated an undescribed small species, known only from the Northern Territory (first collected there in 1981 by HKL) and off Cape York, and stated that it was most similar to their *G. gymnocara*, as both species lack scales on the cheek, opercle and predorsal region, unlike other species of the genus. In their description of *G. gymnocara*, Randall and Greenfield included two paratype specimens from the Northern Territory (AMS I.23930-011). As no other specimens of *G. gymnocara* have so far been found in the Territory, these paratypes were examined and were found to be female specimens of the undescribed species (the larger specimen had a second dorsal fin count of I,11, but anal ray count of I,11, while the smaller specimen had I,10 second dorsal rays and I,11 anal rays; both have scaleless pectoral fin bases and typical female colouring for the new species).

We describe this new species here, and briefly comment on some other species of the genus.

## MATERIAL AND METHODS

**Morphometrics and measurements.** Measurements were taken using electronic callipers and dissecting stereomicroscope. Counts and methods generally follow Hubbs and Lagler (1958), except for transverse scale counts (TRB), taken by counting the number of scale rows from the anal fin origin diagonally upward and back toward the second dorsal fin base, and head length is taken to the upper attachment of the opercular membrane. Morphometric values are expressed as a percentage of standard length (SL) or head length (HL). In the description, numbers in parentheses after counts indicate the number of specimens with that count, or the range of counts. Pterygiophore formula follows Birdsong *et al.* (1988). Vertebral counts and

other osteological information were obtained by clearing and double-staining. Terminology for lateral canals and sensory pores follows Larson (2001). Papillae rows are named based on Sanzo (1911). Abbreviations for institutions referred to are as in Leviton *et al.* (1985); but note that the name of the Museum and Art Gallery of the Northern Territory is no longer as it appears in Leviton *et al.*

## SYSTEMATICS

### *Gnatholepis argus* sp. nov.

(Figs 1–5)

*Gnatholepis gymnocara* Randall and Greenfield, 2001: 14 (in part).

*Gnatholepis* sp. – Randall and Greenfield 2001: 16, pl. 11H; Thacker 2004: figs 1–2, tables 1–2.

**Diagnosis.** A small *Gnatholepis* (up to 33 mm SL) lacking scales on side of head, predorsal midline and pectoral fin base, no distinct flap on end of lower lip (low fold may be present), and no distinct canine or enlarged teeth; sexually dimorphic in adult size and colour, with females averaging larger than males; sexually dichromatic: males with row of six dusky to blackish spots or blotches along mid-side of body, posteriormost 3–4 blackish spots darker and larger than anterior spots and surrounded by small iridescent blue spots in life, small dense black spots scattered on unpaired fins; females with broken grey line along mid-side of body and dusky to blackish spots or blotches indistinct and posterior blotches not darker than anterior ones, no small iridescent blue spots on body; second dorsal fin rays modally 1,10; anal fin rays modally 1,11; pectoral rays 15–18; longitudinal scales 24–28; predorsal scales absent from nape midline, scales on side of head may reach from just over opercle to nearly behind eyes.

**Material examined.** 492 specimens, 6–33 mm SL. HOLOTYPE – NTM S.14965-032, 25.5 mm SL male, N side of Turtle Reef off Field Island, Northern Territory, 0–0.25 m, coll. H. Larson and party, 10 September 1999. PARATYPES – NORTHERN TERRITORY: NTM S.14965-008, 105(11–26), same data as holotype; QM I.37222, 12(19–25.5), same data as holotype; USNM 384336, 12(19–25.5), same data as holotype; NTM S.10005-034, 128(8–26), reef flat on E side Burford Island, off Aiton Bay, NT, 0–0.5 m, coll. H. Larson, 13 October 1981; BPBM 40168, 12(16–24.5), same data as preceding; NTM S.10006-027, 7(16–26), pools among

**Fig. 1.** Holotype of *Gnatholepis argus* sp. nov., NTM S.14965-032, 25.5 mm SL male from north side of Field Island, Northern Territory.

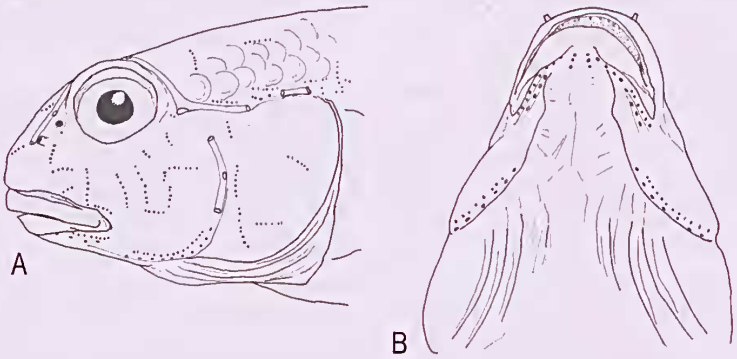


**Fig. 2.** Papillae pattern and sensory canal arrangement in 27.5 mm SL female *Gnatholepis argus* sp. nov., East Point Reef, Darwin Harbour, Northern Territory (AMS I.23930-011); also a paratype specimen of *Gnatholepis gymnocara*. **A**, lateral view; **B**, underside of head.

mangrove roots along shoreline, E side Burford Island, off Aiton Bay, NT, 0–0.5 m, coll. H. Larson, 13 October 1981; NTM S.13237-038, 38(12–33), fringing reef flat on W side Rimbija Island, off Cape Wessel, NT, 0–0.5 m, coll. H. Larson and J. Hanley, 16 November 1990; NTM S.14966-022, 46(6–26), rocky reef on N side Field Island, NT, 0.05 m, coll. H. Larson, R. Williams and A. Pickering, 10 September 1999; NTM S.10411-026, 22(12–23), rocky reef off Bullocky Point, Fannie Bay, Darwin, NT, 0–0.25 m, coll. H. Larson, 11 December 1981; S.10033-005, 115 (9–22), reef flat SE of Dudley Point, East Point area, Darwin, 0–0.25 m, coll. H. Larson and P. Horner, 13 November 1981. QUEENSLAND: AMS I.19356-016, 61(22–33), N side Terry Beach, Prince of Wales Island, Torres Strait, 1 m, coll. D. Brown and W. Ponder, 2 July 1976. WESTERN AUSTRALIA: AMS I.24713-005, 1(29), No Name Bay, Dampier, coll. S. Blaber, 7 January 1989.

**Other material.** NORTHERN TERRITORY: NTM S.13718-014, 2, Darwin Harbour; NTM S.12811-038, 3, Channel Island; NTM S.10429-033, 11, Channel Island; NTM S.12447-015, 3, East Arm Darwin Harbour; AMS I.23948-013, 2, East Arm; AMS I.24676-014, 12, East Arm; AMS I.23930-011, 2 paratypes of *Gnatholepis gymnocara*, East Point; NTM S.10412-005, 3, Bullocky Point; AMS I.24677-003, 12, Bullocky Point; NTM S.15675-016, 8, Dudley Point; NTM S.11813-004, 1, East Point; NTM S.10417-001, 22, East Point; AMS I.24678-007, 10, East Point; NTM S.15221-019, 1, Nightcliff reef; AMS I.24694-004, 88, Gunn Point; NTM S.12448-012, 21, Lee Point; AMS I.24688-007, 2, Lee Point; NTM S.10415-019, 24, Lee Point; NTM S.10036-006, 12, Lee Point; NTM S.10690-005, 3, Vernon Islands; NTM S.10011-015, 10, Trepang Bay; NTM S.14961-007, 1, West Alligator Head; NTM S.15532-018, 51, Field Island; NTM S.14471-007, 2, Field Island; NTM S.14469-004, 34, Field Island; NTM S.14472-014, 22, Field Island; NTM S.14665-024, 7, Field Island; NTM S.10004-034, 1, Sandy Island Number Two; NTM S.10603-030, 1, North Oxley Island.

**Description.** Based on 80 specimens, 11.5–32.5 mm SL. An asterisk indicates the counts of the holotype (Fig. 1).

First dorsal VI*; second dorsal I,9–I,11 (modally I,10*); anal I,11–12 (modally I,11*), pectoral rays 15–18 (modally 17*), segmented caudal rays always 17*; caudal ray pattern usually 9/8*; branched caudal rays 6/6 to 8/7* (modally 7/7); unsegmented (procurrent) rays 7/6 (1), 8/8 (1); longitudinal scale count 24–28 (mode 26, 27 in holotype); TRB 7–9½ (mode 8½, 7½ in holotype); circumpeduncular scales 11–12* (mode 12) (Table 1). Gill rakers on outer face of first arch 0–1 + 2–3 (in 8, modally 1+3). Pterygiophore formula 3-22110 (in 2). Vertebrae 10+16 (in 2), including urostyle. One (in 1) or two epurals (in 1). Two anal pterygiophores before haemal spine of first caudal vertebra (in 2).

Body compressed, somewhat more rounded anteriorly. Head compressed, broader ventrally, slightly deeper than wide, HL 24.9–30.0% (mean 27.5%) of SL; head depth at posterior preopercular margin 63.0–80.0% (mean 70.1%) of HL; head width at posterior preopercular margin 59.6–76.5% (mean 67.6%) of HL; head profile bluntly pointed to bluntly rounded. Mouth subterminal and small, almost horizontal; jaws generally reaching to below anterior half of eye; upper jaw length 29.3–39.0% (mean 34.2%) of HL. Lips smooth; upper lip broader than lower, lower lip with low twist or fold on posterior portion, but not forming triangular flap as in most *Gnatholepis*, lip broadening anteriorly and interrupted at chin by narrow mental bump or short longitudinal fold on chin. Eye moderate, round, dorsolateral, top forming part of dorsal profile, 25.0–33.3% (mean 29.3%) of HL. Snout blunt to rounded, 22.7–35.2% (mean 28.6%) of HL; posterior nostril small and round, adjacent to anterior margin of eye; anterior nostril in short tube, close to anterior nostril, at a level with ventral margin of eye. Interorbital very narrow, 4.4–8.6% (mean 6.3%) of HL. Body depth at anus 16.7–22.1% (mean 19.7%) of SL. Caudal peduncle compressed, length 12.0–18.2% (mean 16.0%) of SL; caudal peduncle depth 6.7–12.6% (mean 11.3%) of SL (Table 2).

**Table 1.** Meristics of specimens of *Gnatholepis argus* sp. nov.

| | Holotype | Means | Max. | Min. | Mode |
|---|---|---|---|---|---|
| Second dorsal rays | I,10 | I,10 | I,11 | I,9 | I,10 |
| Anal rays | I,11 | I,11 | I,12 | I,10 | I,11 |
| Pectoral rays right | 17 | 17 | 18 | 16 | 17 |
| Pectoral rays left | 17 | 17 | 18 | 15 | 17 |
| Caudal segmented | 17 | 17 | 17 | 17 | 17 |
| Caudal branched | 15 | 14 | 16 | 12 | 14 |
| Longitudinal scales | 27 | 26 | 28 | 24 | 26 |
| Transverse rows back | 7½ | 8½ | 10 | 7 | 8½ |
| Transv. rows forward | 7 | 9 | 12 | 7 | 9 |
| Caudal peduncle scales | 12 | 12 | 12 | 11 | 12 |

First dorsal fin rounded to roughly triangular or square, with no spines greatly elongate; third or fourth spine usually longest or subequal in length; when depressed, spine tips reach to first to third element of second dorsal fin or falling short of first fin element (usually in specimens less than 20 mm SL). Third dorsal spine 13.3–20.4% (mean 16.2%) of SL; fourth dorsal spine length 13.4–20.9% (mean 17.3%) of SL. Second dorsal fin almost as tall as first dorsal, rays longer posteriorly than anteriorly, fin pointed posteriorly. Anal fin somewhat lower than second dorsal, anteriormost rays shorter than posterior few rays; fin pointed to slightly rounded posteriorly. Second dorsal and anal fin rays, when depressed, reaching caudal fin in adults. Pectoral fin pointed, central rays longest, 22.6–30.4% (mean 26.1%) of SL; rays all branched but for upper and lowermost ray, fin reaches to above first few anal fin rays. Pelvic fins fused, frenum with finely fimbriate margin, fins oval, reaching to above anus or nearly to anal fin origin, 22.9–28.7% (mean 26.5%) in SL. Caudal fin moderate, oval, 25.2–36.5% (mean 30.9%) of SL.

Chin usually with small longitudinal bump or low fold. Gill opening restricted, extending anteriorly to lower edge of pectoral base. Gill rakers on outer face of first

**Table 2.** Measurements of specimens of *Gnatholepis argus* sp. nov., expressed as percentage of standard length (SL) or head length (HL).

| | Holotype (male) | Means (males) | Max. (males) | Min. (males) | Means (females) | Max. (females) | Min. (females) |
|---|---|---|---|---|---|---|---|
| Standard length | 25.5 | 20.8 | 29.5 | 11.5 | 23.9 | 32.5 | 15.5 |
| Head length in SL | 26.3 | 27.3 | 29.4 | 24.9 | 27.9 | 30.0 | 25.9 |
| Head depth in HL | 74.6 | 69.7 | 80.0 | 66.1 | 70.2 | 80.0 | 63.0 |
| Head width in HL | 73.1 | 67.5 | 73.7 | 59.6 | 67.5 | 76.5 | 61.1 |
| Body depth in SL | 20.0 | 19.1 | 20.9 | 16.7 | 20.4 | 22.2 | 18.6 |
| Body width in SL | 9.8 | 10.4 | 13.1 | 8.5 | 10.7 | 12.8 | 9.4 |
| Caud. ped. length in SL | 15.7 | 15.7 | 18.2 | 12.0 | 16.2 | 17.7 | 13.7 |
| Caud. ped. length in SL | 11.8 | 11.3 | 12.6 | 6.7 | 11.3 | 12.2 | 10.7 |
| Snout length in HL | 28.4 | 29.0 | 35.1 | 22.7 | 28.4 | 35.2 | 22.9 |
| Eye width in HL | 29.9 | 29.6 | 33.3 | 25.0 | 28.8 | 32.4 | 26.1 |
| Jaw length in HL | 37.3 | 35.0 | 39.0 | 29.5 | 33.3 | 38.7 | 29.3 |
| Interorbital in HL | 7.5 | 6.2 | 8.6 | 4.8 | 6.2 | 8.0 | 4.4 |
| Pectoral fin in SL | 26.3 | 26.0 | 30.4 | 22.6 | 26.1 | 28.3 | 23.7 |
| Pelvic fin in SL | 27.5 | 26.9 | 28.7 | 23.4 | 26.0 | 28.6 | 22.9 |
| Caudal fin in SL | 34.5 | 32.1 | 36.5 | 28.3 | 29.3 | 32.7 | 25.2 |
| 3rd DI fin spine in SL | - | 16.9 | 20.4 | 14.7 | 15.5 | 17.6 | 13.3 |
| 4th DI fin sp in SL | 20.0 | 18.2 | 20.9 | 14.9 | 15.7 | 17.0 | 13.4 |

arch few, short and stubby, longest raker at angle of arch; few rudimentary rakers on inner face of first arch; outer rakers on second gill arch consisting of low pads of pointed papillae; outer rakers on remaining arches similar to those on first arch but longer. Inner face of upper limb of first gill arch, and to lesser extent, upper limbs of other arches, covered with low dense fleshy papillae which may form clumps or groups; dorsal portion of arch may have short fleshy protuberances ending in one or several papillae. Lower quarter to one-third (usually one-third) of first gill arch bound by membrane to inner face of opercle. Tongue short, tip blunt to concave.

Teeth in upper jaw in two rows across front and one row at side of jaw, outermost row teeth largest, curved and pointed, largest teeth at front on either side of symphysis; innermost row teeth quite small, sharp and evenly sized. Teeth in lower jaw in two rows, arranged similarly to upper jaw but outer row teeth smaller (especially in females); posteriormost outer row tooth may be slightly recurved.

Predorsal scales smaller than body scales, cycloid, reaching on side of nape to variable extent, from just over opercle to nearly behind eyes; midline always naked. Ctenoid scales on side of body extending up to pectoral fin base. Opercle and preopercular area without scales. Breast naked (usually) or with small patch of embedded cycloid scales before pelvic fins (2–6 scales). Pectoral fin base naked. Belly scales usually cycloid; midline may be naked; ctenoid scales may be present posteriorly on midline in some specimens.

Head pores with anterior nasal pore just anterior to anterior nostril tube, posterior nasal pore beside each posterior nostril, a pair of anterior interorbital pores, a single posterior interorbital pore, a postorbital pore, a terminal pore over opercle and an anterior and posterior temporal pore in short separate posterior portion of the oculoscapular canal over opercle; three preopercular pores present (Fig. 2A).

Sensory papillae arranged in sparse transverse pattern (Fig. 2A); vertical row *ot* on opercle may be broken or continuous. Papillae on chin in two, short, longitudinal rows on either side of low bump (Fig. 2B).

**Coloration of fresh material.** Randall and Greenfield (2001: pl. IIH) illustrated this species in colour. A photograph by Doug Hoese, of a fresh specimen from East Point (Fig. 3), shows the head and body pale pinkish orange with dark brown speckling and short vertical dark brown streaks and six rounded blackish spots along midside of body, side of head and body covered with dark-margined iridescent pale-blue oval spots, which cluster and partly coalesce around posteriormost four blackish round spots, forming ocellate dark spots. Blue spots on side of head fewer, may be larger and darker than those on body; cheek and opercle tend to be more orange than pinkish. Eye brown dorsally with dark brown to blackish marks around margin; iris pale gold, reddish dorsally; single short black mark extends from ventral margin of eye partly onto cheek, several short black marks on cheek and near rictus. A broken line of dark brown dashes along midside of body, coinciding with midlateral round blackish spots.

Unpaired fins pinkish, roughly banded with rows of white to bluish white spots; small dense black spots scattered over fins, rows of black spots present on first spine of each dorsal fin; anal fin darker pinkish brown than other fins, and oval blue (not bluish white) spots; pectoral fins with transparent membrane and rays pinkish orange, dotted with melanophores; pelvic fins brownish with white to orange mottling.

The specimen in Randall's photograph (Randall and Greenfield 2001: plate IIH) has all the fins extended, so it can be seen that the black spots on the dorsal and caudal fins are arranged in approximate rows, and the black spots in the anal fin are coalesced into oblique streaks running dorsoposteriorly.

The black marks on the cheek are joined to form an irregular blotchy line from the eye to the lower jaw.

**Coloration of preserved material.** Head and body yellowish white, most scales with dusky margin or with brown to dark grey spot on rear margin; along mid-side of body a dark brown line broken into six sections, in males a rounded dusky to dark brown blotch around each section of brown line, posterior three round dark blotches darkest and surrounded with lighter brown pigment; in females, a faint dusky blotch or short bar around each section of mid-lateral brown line but no blotches particularly darker than others (Figs 1, 4). Some specimens very pale, whitish, others show intense coloration. Dorsal midline with about 12 dusky to dark brown spots or small blotches, anteriormost blotch on nape above rear edge of opercle. Broken brownish to dark brown horizontal line from rear edge of eye extending back onto body, ending at point below third first dorsal fin spine or above pectoral fin base; broken line may be intensified over pectoral fin base into series of dark brown partly connected small spots; pectoral base with several dusky blotches or short horizontal dusky to brownish lines, which may extend partly on to base of fin. Side of head with few scattered dusky to dark brown small spots or blotches; narrow dusky to blackish vertical line crossing cheek from lower margin of eye, ending on cheek behind rictus, line may be irregular or broken into blotches; short horizontal dusky to blackish line from posterior end of upper lip extending back to fall short of, to meet, or to cross vertical cheek line, may extend back onto rear half of cheek. Dorsal margin of eye with dark brown or blackish blotch or short line, which does not extend into interorbital space. Dark brown to blackish short lines, spots or blotches around nostrils, anterior nostril tube dusky to dark brownish. Lips dusky with two to three short brown lines or spots crossing obliquely, angled toward, and fading out on, chin. Underside of head, breast and belly plain brownish or dusky.

In males, first dorsal fin plain dusky to dark grey, with two to three irregular rows of oval dense black spots, three to four similar black spots evenly spaced along anterior face of first spine; oval transparent to whitish spots often scattered over fin. In females, first dorsal fin translucent to dusky grey, with four dark grey to blackish streaks or series of broken oblique dark lines; four blackish spots across anterior face of first dorsal spine; broad plain dusky grey band along distal margin of fin. Second dorsal fin, in males, similar to first dorsal fin but with narrow transparent margin to fin; dense black oval spots in three to four irregular rows, four black spots along anterior face of fin spine; oval translucent to whitish spots may be larger and more numerous than on first dorsal; fin usually darker posteriorly. Second dorsal fin in females very similar to first dorsal, but four to five rows of short dark streaks present, mostly on fin membranes; four to five dark spots on anterior face of fin spine. Anal fin in males plain dusky to dark grey with few scattered dense black spots, especially posteriorly; may be paler dusky band along fin margin. Anal fin plain dusky in females. Caudal fin translucent to dark grey (darkest in adult males), with irregular rows of small dense black to dark grey spots crossing fin; several black spots near upper and lower base of fin may be enlarged and intensely black; males with transparent oval spots on membrane, mostly toward central part of fin; fin

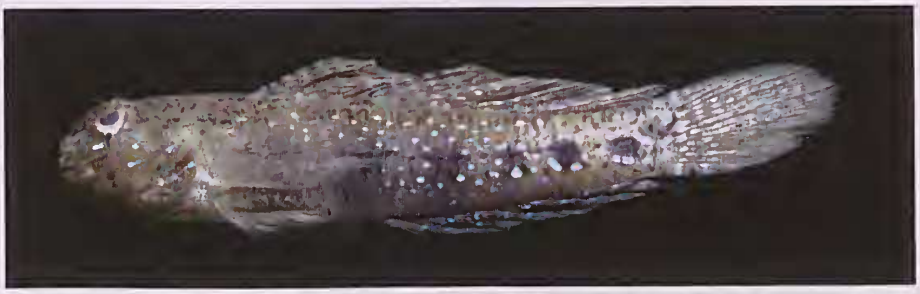

**Fig. 3.** *Gnatholepis argus* sp. nov. Fresh male specimen (AMS I.24677-003) from Bullocky Point reef, Darwin Harbour; photograph by Doug Hoese.

**Fig. 4.** *Gnatholepis argus* sp. nov. Female paratype specimen (NTM S.14965-008) from Field Island, Northern Territory (same locality as holotype), showing difference in preserved colour pattern.

tends to be darkest ventrally. Pectoral and pelvic fins plain dusky to brownish grey.

**Distribution.** Specimens are known only from northern Australia, where suitable intertidal coral/rocky reef habitat is present: from Dampier, Western Australia, across the Northern Territory to Cape Wessel, and from one locality in the Torres Strait (Prince of Wales Island). The apparent disjunct distribution is probably due to lack of collecting in suitable habitats.

**Ecology.** This species has been collected from shallow intertidal pools (no deeper than 1 m) on rocky fringing reefs, where low corals, especially faviids, and sponges are present, with a substrate of sand to muddy rock; the surrounding waters are turbid. It can be locally abundant.

**Comparisons.** This is a sister-species to *Gnatholepis gymnocara*, which appears to be restricted to the Queensland coast. Both species are small and differ from all other *Gnatholepis* in having a naked or mostly naked predorsal mid-line, no scales on the cheek and opercle, and all teeth in the lower jaw are small and similar in size, with no enlarged or recurved canines. *Gnatholepis argus* differs from *G. gymnocara* in having I,11 anal rays (versus I,12), second dorsal rays I,10, rarely I,11 (versus I,11, rarely I,10 rays), no scales on the pectoral fin base (versus a few embedded scales), being smaller (greatest adult size 33 mm SL versus 36.6 mm SL), and in colour pattern differences: males being strongly marked, with small dense black spots on unpaired fins, and posteriormost 3–4 mid-lateral spots darker and larger than anterior spots (versus males without dense black spots on fins and no large dark spots on side of body).

**Etymology.** In reference to the Greek god Argus, of the many watchful eyes, in reference to the eye-like blue-spotted pattern along the side of the body in males; a noun in apposition.

## DISCUSSION

Thacker (2004) discussed the species of *Gnatholepis* and carried out a cladistic analysis using DNA data for what she considered to be six species, including *G. argus* (referred to as *Gnatholepis* sp. Randall and Greenfield), although she lacked DNA material of its sister species, *G. gymnocara*. She demonstrated that *G. argus* was basal to all other *Gnatholepis* species (Thacker 2004: fig. 2). However, the names Thaeker assigned to each of the other *Gnatholepis* species did not coincide with those used by Randall and Greenfield (2001) and she did not examine type material of *G. cauerensis* or *G. scapulostigma* (while using the name *G. scapulostigma* for the species usually referred to as *G. cauerensis*). Material identified by Thacker (2004: 581–582, fig. 1) as *G. anjerensis* and *G. davaoensis* from the Northern Territory are all *G. argus*. This is based upon direct examination, by the senior author, of the same AMS specimens that Thacker examined. Randall and Greenfield also synonymised several species of *Gnatholepis* without providing any reasons for doing so. For example, they placed *Gobius ophthalmotaenia* Bleeker as a synonym of *Gnatholepis anjerensis*, apparently without examination of type specimens. As a result, the two most recent reviews of *Gnatholepis* species are unsatisfactory, contradictory and confusing and thus in need of revision. We have commenced a revision of the genus *Gnatholepis*. The two basal small species, *G. gymnocara* and *G. argus*, appear to be the only taxa in the genus that do not require reviewing.

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